Vol. XI. No. 16. July 30, 1914

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

RELATIVITY, REALITY, AND CONTRADICTION

THE discussion concerning the subjectivity of the secondary qualities, begun more than a year ago by a communication of Professor Cohen's to this JOURNAL,[1] has penetrated to an issue more fundamental than that in which it began, and has disclosed the fact that the original difference of opinion was at least in part due to a lack of agreement upon this deeper-lying question. Any philosophical discussion which accomplishes so much as this (at least in an inning and a half) may be considered to be justified by its results, and therefore to be worth continuing. It is, in the main, about the new and larger issue that I wish now to present a few observations. But it is doubtless expedient to recall to the reader's mind the "dialectical movement" of this little controversy up to the present point in order to show how the initial problem has been found to involve the new one.

The classic argument for the subjectivity of the secondary qualities of matter is based upon the discrepancies between the qualities which an object occupying a given space exhibits in the perception of one observer and those which it at the same moment exhibits in the perception of another observer. It would, as the present spokesman of this ancient piece of reasoning observed, be self-contradictory to suppose that the object possesses, *as qualities of itself,* all the irreconcilable characters which it appears in different people's experiences as simultaneously having; *ergo,* some, at least, of these qualities are but appearances to these observers, not objective attributes of any independent physical reality. But, urged Dr. Cohen, there is nothing contradictory in a thing's having opposite predicates *in different relations.* The same line, *e. g.,* may simultaneously subtend two different angles—namely, from two different points of view. "True, and obvious," was the reply; "but ill adapted to prove the objectivity of the secondary qualities. In diverse relations any object may assuredly have, without contradiction, any number of attributes which would, if considered in any one relation, be incompatible. But if an object

[1] Vol. X., page 27; *cf.* also Vol. X., pages 214 and 510.

possesses a certain attribute *only as a function of its relation to another entity,* and that entity, moreover, is a subject, or sentient organism—then the attribute is precisely what one means by a subjective quality. In order to avoid contradictions, the secondary qualities are, by science and by modern common sense, regarded thus as functions or products of the relation to individual subjects of a physical reality which apart from that relation is without those qualities."[2]

But, objects Dr. Cohen—and here the deeper issue begins clearly to emerge—this way of distinguishing certain qualities as subjective, implies that there are certain other qualities which, in contrast with these, are *not* functional or relational. It assumes that, besides its relations and the predicates dependent upon, and explicable only in terms of, its relations, "every real thing has a 'nature' or character or set of qualities of its own." But to this assumption Dr. Cohen refuses to subscribe. Those who admit it, he thinks, can do so only because their thought is haunted by "a ghost of the thing-in-itself." But "whatever may be said of *dinge-an-sich,* it seems certain that science does not deal with them, and that none of its objects possesses qualities in isolation, but only in given systems. If things could not have contradictory qualities, neither could they have contradictory relations or attributes, and all predication would be impossible."[3] So much as Professor Cohen thinks, was long ago proved by Plato in the "Parmenides."

It is evident that this way of thinking, if correct, may be applied to other ends than the disproof of the subjectivity of the secondary qualities of matter. It would, in fact, apparently render impossible any cogent proof of the subjectivity of anything. For all arguments—except those not strictly conclusive ones which rest upon the principle of parsimony—for the classification of any content of experience as "subjective appearance" proceed by pointing out some contradiction in the supposition that that content forms a true part of the objective order of nature. It is by one and the same type of inference that people have argued to the subjectivity of hallucinations and to the subjectivity of those elements in normal perception which are known as the secondary qualities. If, however, as Professor Cohen suggests, there is no reason why objects should not possess any number of contradictory predicates, this type of inference becomes invalid, in the one case as in the other. Thus Professor Cohen presents to our new realists a dialectical weapon not, I think, hitherto employed by them, which, if it be of true mettle, should

[2] This, of course, is not a quotation from the writer's previous argument, but a very brief summary of the points he tried to make in Vol. X., pages 214–218.

[3] This JOURNAL, *op. cit.,* pages 511–512.

serve them most conveniently in their defense of the paradox that, as has often been pointed out, is implicit in their "epistemological monism"—*viz.*, the view that all perceptual content, hallucinatory or otherwise, is equally objective, "external," and independent of the perceiver. For it should be noted that Professor Cohen's suggestion is not identical with that with which Professor Holt dallies in his contribution to "The New Realism." It is not the contention of Professor Cohen that irresoluble and unqualified contradictions exist in the objective world. Conceive every quality as relative to "a given system," and then it becomes incapable of really contradicting any qualities extrinsic to that system. Considered apart from these systems of relation, the contradictoriness of the attributes of things is real; considered with due regard to those systems, it disappears. Thus we need not hesitate to ascribe to a given "object" the most conflicting predicates; for we can promptly dispel the resultant appearance of self-contradiction, by merely adding that the predicates are not all ascribed to the object in the same relation. Such is the powerful yet simple logical device which Professor Cohen puts into the hands of the partisans of "pan-objectivism," to aid them in averting the most embarrassing implications of their doctrine. It is, I believe, the seventh distinct instrument for this end which has recently been invented; and, if it be not too invidious a comparison to say so, it seems to me to present, at first inspection, the neatest and most attractive appearance of them all.

Yet it will not do to be content with a first inspection. Upon closer analysis Professor Cohen's use of this notion of relativity would seem, in the first place, to be seriously ambiguous in meaning, in its application to the original question, that of the secondary qualities. The ambiguity will become evident if we introduce a distinction which Dr. Cohen neglects. Even in a world of relations and relational attributes only, there are, it must be supposed, *different* relations. A given quality might be a function of some relation, but not necessarily of a relation to a subject or perceiver. Is it, now, Professor Cohen's meaning that "science" regards all the qualities which can be predicated of a physical object as determined by its relation to different *observers*—so that, in relation to observer *A* it has one set of qualities, in relation to observer *B* another, possibly contradictory set, and so on; and, beyond the sum of all these, has no predicates at all? Or is it his meaning only that all the qualities are determined by, and vary with, certain other relations, which are unmodified by the relation to a subject and may subsist when the latter relation does not subsist? If the former be his meaning, his disproof of the subjectivity of the secondary qualities amounts to a proof of the subjectivity of all qualities. Is it this poisoned chalice

which he proffers with so friendly an air to the lips of the new realists? His slighting words about *Dinge-an-sich* might lead one to suppose so; for surely, life must be insupportable to a realist without *some* kind of thing-in-itself. If, however, Professor Cohen's meaning be the second of those which I have discriminated, he escapes universal subjectivism, indeed, but also fails to make out any case against the subjectivity of the secondary qualities. There would be nothing in his relativistic logic to render the distinction between the objective and subjective attributes of a thing impossible or unnecessary. The former class of qualities would consist of those which, though determined by relations, would be independent of the "consciousness-relation"; the latter would consist of the sets of experienced qualities which can escape reciprocal contradiction only by being regarded as functions of the diverse relations of the object to various percipients.

Thus, so far as the original issue is concerned, Professor Cohen's relativism proves either too much or too little. Interpreted in one of its two possible senses, it lands you in idealism or in a relativistic skepticism. Interpreted in the other sense, it leaves the specific question of the relativity of the secondary qualities exactly where it found it.

The hypothesis might, however, be modified by the addition of a further clause; namely, that the so-called "consciousness-relation" is never determinative of any quality, that the systems consisting of the experiences of different minds are *not* among the systems with respect to which objects may have qualities which they lack apart from those systems. And it is only with this supplement that Professor Cohen's suggestion can render the new realism any genuine service. So long as it is admitted that there may be qualities which can be ascribed to an object only by virtue of a special relation in which it stands to a sentient organism, and only from the point of view of that organism, the doctrine that consciousness is a wholly "external" or non-constitutive relation is obviously excluded. One's universe would still contain a realm of purely subjective existents, and would, therefore, be radically different from the neo-realist's universe. If, in short, Professor Cohen's relativistic logic is to be used for the disproof of the subjectivity of anything, the diverse relations which are supposed to make it conceivable that an object may possess "contradictory qualities," must all be relations between objects, relations independent of the perceiver.

Let us, then, take the conception under discussion in this strictly objectivistic sense. So taken, it will still be found to be ambiguous. It may mean either one of two quite distinct views. Professor Cohen's language at times suggests the more radical view that the

qualities of objects *are* relations between objects; to "the familiar distinction between the qualities of a thing and its relations" he tells us that he pays no deference. Other expressions of his, however, are reconcilable with the less paradoxical contention that qualities are merely relative, *i. e.*, are in some manner dependent upon relations. In the interest of completeness of treatment, it seems necessary to examine both of these views.

First, then, for the doctrine that qualities are reducible to relations and that, because of this, "qualities" which would otherwise appear incompatible can be predicated of a single object. Any one of three considerations seem to me fatal to this doctrine.

(*a*) It appears to be supposed by several recent philosophical writers that latter-day science has actually abrogated the notion of quality, as well as that of substance, and has taught us to think of the world as consisting of relations merely. I find it difficult to imagine a more evident and elementary distinction than that which such a supposition overlooks. Our science is, of course, concerned with the discovery of the causal relations between the qualitatively diverse phenomena making up our perceptual experience. And the causes or conditions, or, contrariwise, the effects, of a phenomenon are themselves formulated in terms of a correlation of two or more other phenomena. Science, moreover, or at least the sciences of physics and physical chemistry, have found it serviceable to regard all the causes of all the qualitatively various phenomena with which these sciences are concerned as resoluble into rearrangements of homogeneous units of matter or of energy; so that the difference between one physical event and another, on the side of their determining conditions, may be formulated purely in terms of the spatial, temporal, and numerical relations of the units involved. As a result of this, undeniably, there have been banished from that world of causes which our ruling scientific hypotheses put behind the world of our actual sense-experience, nearly all the sensible qualities of things. But this does not in the least mean that qualitative differences *are* quantitative differences in a homogeneous substance. A thing and its causes or conditions are not one entity; and it is a very naïve confusion to suppose that when we have discovered that the causes differ in their "nature" or attributes from the effect, we must forthwith deny of the latter the possession of attributes which we actually find it possessing. What blue is, as a datum of sense-experience, we know very well. And we know equally well that it is not an undulation of a colorless medium. We also know that the difference between it and red, as they occur in sensation, is not describable as a merely quantitative

difference between two wave-lengths.[4] It is, it is true, a not uncommon thing for physicists to say that the color *is* the undulation, or that heat *is* a mode of motion. But they do this precisely because they assume, what Professor Cohen denies, that the sensory qualities in question are but subjective, and that the external determinants of the sensation are alone independently real. In short, when they employ such expressions they are using the verb "to be" in a peculiar sense, big with philosophical assumptions which Dr. Cohen would repudiate. Even so, few physicists, I suspect, are so thoroughly victims of the ambiguity of the word "is" that they imagine the *meaning* of the concept of "red," or the nature of the sensation to be identical with the idea of a wave length of 6438Å.

(*b*) To reduce differences of quality to quantitative differences is, in any case, not tantamount to an elimination of quality from the universe. A homogeneous matter, for example, is not a qualityless matter. But if the program which Dr. Cohen appears to suggest were carried through, both science and philosophy would apparently be confronted with a world composed exclusively of relations—with no terms to be related! This is a brave paradox; but I doubt whether it will be found a helpful one by philosophy. And I am fairly sure that natural science will not find such a conception an adequate means for describing the richness, and the singular fulness in blankly qualitative content, of our actual experience, taken as a whole.

(*c*) Professor Cohen, as we have seen, appears to regard the relational conception of qualities as somehow capable of removing the taint of contradiction from propositions which a more abstract logic would consider self-contradictory. Now, it has, of course, been a commonplace of logic ever since Plato's time and probably longer, that if you take any relational attribute and inquire as to its predicability of a given term, you are obliged both to affirm and deny that attribute of that term, so long as you leave out of account the other term of the relation. Any object, as Plato would have said, "partakes of" both smallness and greatness, both equality and inequality; it is at once to the right and to the left, it is half and it is double, and so on.

[4] Professor Holt has recently attempted, with considerable ingenuity, to persuade the readers of "The New Realism" that the difference between what they experience when they see the color red, and what they experience when they are sensible of a sweet taste is nothing at all but a difference in the "time-density" of two vibrations. The outcome of the argument seems to me (as I have elsewhere indicated) to bring out admirably the hopelessness of the enterprise. It should be remarked that, even if the doctrine here under consideration be the one intended by Cohen, it is not quite identical with Holt's. For the latter, so far as I am able to gather, does not base the theory of the possible reality of contradictory qualities directly upon the theory that qualities are relations.

But it is all these things only in relation to *different* other objects. The so-called contradiction, in short, is none,—except for a Megarian or for a Plato engaged in out-megarizing the Megarians—for the simple reason that the relational predicates have no real meaning until both terms of the relation asserted are designated. If this is the kind of contradictoriness of qualities to which Professor Cohen refers, it is a kind which philosophy has long taken cognizance of and long known to be spurious. Elementary logic has a familiar name for the attempt to base a *reductio ad absurdum* upon a "contradiction" of this sort: the fallacy of accident. Not in this kind of relativity can Professor Cohen hope to find any relaxation of the restrictions imposed by the ordinary principle of contradiction. Relational predicates, as a matter of fact, are precisely the ones to which the applicability of that principle is most obvious—as soon as all the terms of the relation are specified. What would really make "all predication impossible" would be the supposition that an entity can at the same time be in a given relation to another entity and not in that relation to the same entity. The assumption of the absolute univocality of each determinate relation of each thing to any other specified thing is the *sine qua non* of all reasoning and all coherent thought.

Let us now turn to the other possible interpretation of Professor Cohen's thesis: that qualities are not of the nature of relations, but only relative. This, again, might mean either of two things.

(*a*) It might mean that the qualities of an object vary with, and are determined by, its relations. This, of course, is in general undeniable. To say of any quality or event that its occurrence in our experience is logically or causally conditional, is to say that it is a function of its relations. But obviously there is nothing in this sort of relativity which can free from contradictoriness any propositions which any one would ever be likely to think contradictory—which can, for example, assist us in thinking of a single plane surface as "objectively" both red and blue. Though a thing's relations to other things determine the character which at any given moment it has, they none the less unequivocally determine it to have, then and there, *one* character, and not two contradictory ones.

(*b*) As a last hope, it is apparently necessary to construe Professor Cohen's contention to mean that while qualities are irreducibly qualitative, the same "object" may have one quality, in its relation to one (physical) object, and at the same moment another quality in its relation to a second object. Just as it may be to the right of the one and to the left of the other, so it may be blue with respect to the one and red with respect to the other, a foot long with respect to the one and a mile long with respect to the other; and thus the disagree-

ing observers who simultaneously perceive it as having both colors or magnitudes, both truly report its actual, objective qualities.

It seems a good empirical objection against such an hypothesis, that the only instances of relativity of pure qualities which we actually discover in experience are instances of relativity to minds, or sentient organisms, not of relativity to other physical objects. It is an empirical fact that two observers often report of what is assumed to be one object that it has for them two discrepant characteristics. It is not, I believe, an empirical fact that a single observer perceives one object, at any one moment, as sensibly possessing for him two discrepant characteristics. He finds it, indeed, possessing diverse (though not, as we have seen, contradictory) relations to other things. But when its qualities are distinguished from its relations (as we have seen above that they must be), the former do not exhibit even the sort of multiplicity that the relations exhibit. At a single moment of perceptual experience (if the writer may judge at all from his own experience) an object is *not* given as red with relation to a thing lying in one direction, as blue with relation to something in another direction, as yellow with relation to something lying in a third direction. Nor, again, is a given portion of space tactually felt by a single percipient to be occupied by a hard resistant substance in relation R and at the same time to be empty and unresistant in relation R^1.

Not only do we lack empirical examples of the objective relativity of the qualities (in the sense now under consideration); it also seems impossible to conceive of true qualities as, in this sense, relative. The distinction between the immediately given qualitative elements of experience, and the relations in which these are enmeshed—a distinction which we have already found reasons for regarding as indispensable—consists precisely in the fact that the very notion of a relation implies a reference to at least two things, while the notion of a quality implies no such reference. The conception of the smallness or the "halfness" of a thing with respect to some determinate other thing, has meaning; and without respect to some other thing, it has no meaning. But the notion of "redness with respect to some other thing" is meaningless; and without respect to any other thing, red still means red. It is, of course, true that we, with questionable accuracy, introduce the category of quantity into our qualitative comparisons, and speak of one thing as "more red" than another; but this does not signify that the logical essence "redness" is entirely reducible to a relation of quantity or of intensity or to an idea of comparison. It is, again, true that the quality in question may, by the inductions of science, be found to be always conjoined with or causally dependent upon the existence of certain relations between

antecedent or contemporaneous things. But these factual relations of dependence do not enter into the meaning of the quality as an experienced datum. At the moment of its direct presence in experience there is in it, behind all of these extrinsic relations, a stark, raw, unanalyzable "whatness." A sensory *quale* is—if I may use a play upon words to sum up the point—not at all a "respectful" thing; it has a kind of absoluteness.

These considerations seem sufficient to justify a rejection of Dr. Cohen's relativistic conception of qualities, even in the last and most promising of its possible interpretations. Consequently, there is nothing in that conception which can show how "contradictory qualities" may be predicated of a single object without actual logical contradiction. No reason has yet been offered for an abandonment of what Professor Montague has recently designated "the axiom of uniplicity," *viz.*, the principle that "any one place at any one time must contain but one set of non-contradictory qualities."[5]

In affirming his loyalty to this principle Professor Montague has, of course, cut himself off, upon a fundamental point of doctrine, from the majority of the neo-realistic fellowship. The argument that the assertion of the objectivity of all content of actual perception implies the real existence of contradictory qualities in the same object has by this time driven a wedge deep into the once fairly compact mass of "new realists." The greater number have either expressly admitted the implication or have sought, by employing the notion of relativity in one form or another, to find a way of maintaining the real existence of contradictory qualities in things without affirming the possibility of the validity of contradictory judgments about things. But to Professor Montague this tendency appears not only pernicious in itself, but also full of menace to the realistic movement; so that he is constrained to reject the gifts borne by Professor Cohen. If he "had to choose between the devil of a familiar subjectivism and the deep sea of this new confusion," he would "unhesitatingly take his stand" with the present writer and the idealists. In view of the reasonings already set down in this paper, I need hardly say that in this matter Montague seems to me to have kept at least the weightier matters of the law, in comparison with which ulterior issues are relatively, though not absolutely, unimportant.

It is, however, of interest to recall that one of the *incunabula* of neo-realistic movement in America was a paper of Professor Montague's, printed in this JOURNAL nine years ago, on "The Relational Theory of Consciousness and Its Realistic Implications."[6] The principal contention of this paper was that "consciousness" should be

[5] *Philosophical Review*, XXXIII., January, 1914, page 55.

[6] Vol. II. (1905), pages 309–316.

regarded as a relation, because the progress of the physical sciences has been due to their repudiation of the notions of substance and quality and their "definite adoption of the category of relation." Psychology and metaphysics, we are told, may expect to make corresponding progress only when they follow the same method and "formulate the difference between physical and psychical as a difference of relational context." The entire argument appeared to imply that the concept of quality has become obsolete in modern thought, and had been, or could be, at all points replaced by the concept of relation.

I mention this, not chiefly for the purpose of showing that Professor Montague has changed his mind (an achievement of which any philosopher may be proud), but for the sake of bringing out an odd but instructive fact concerning the history of the new realism. It has, namely, from the first had in it a strain of relativism. The "relational theory of consciousness" charmed at first sight because it seemed to be in harmony with a larger tendency towards a relational theory of everything. It is true that, however incongruously, the relational theory of consciousness also charmed because it seemed to make possible a *non-relational* theory of *things*, at least so far as the "consciousness-relation" was concerned. A thinker of the true realistic temperament craves a world of objects which have each *some* intrinsic and solid character, which do not endlessly deliquesce into mere relations to other things, themselves equally characterless and elusive. By the device of degrading consciousness to an extrinsic "relation," such a thinker the more readily conceived of the physical world after this fashion. It was an amusing paradox that he should at the same time have found a sanction for this device in the reflection that science tends to an abandonment of the conception of inherent, non-relational qualities, and to a general reduction of all "natures" to relations. But it appears to be the fact that precisely these two incongruous motives were conjoined in the production of neo-realism in its American form. And the present cleavage within it shows that, as the doctrine approaches adolescence, the inner discord arising from its dual heredity is becoming increasingly acute.[7]

ARTHUR O. LOVEJOY.

THE JOHNS HOPKINS UNIVERSITY.

[7] If completeness were possible in a magazine article, two further tasks should be attempted here: (*a*) a proof that the assertion of the subjectivity of some or all sensory data is not itself (as Professor Montague would seem to suppose) a form of relativism, open to the objections which have here been urged against that theory; (*b*) an examination of Professor Montague's substitute—recently restated and elaborated—for the relativistic way of escape from the difficulties of "pan-objectivism." With these topics the writer hopes shortly to deal elsewhere.

TRANSCENDENTALISM AND THE EXTERNALITY OF RELATIONS

IN Mr. Bertrand Russell's paper on the "Basis of Neo-Realism," the doctrine of the externality of relations is defined to mean that there is no internal complexity in terms corresponding to the relations they sustain to one another; and no exception is made of the so-called knowledge-relation. Thus, when any datum becomes the subject-matter of awareness, no change takes place in either the datum or the knower. In his later book,[1] perceptual knowledge is said to involve sensation, sense-data, and physical objects. Sensation is mere awareness,[2] "sense-data are to be regarded as resulting from an interaction between the physical object and ourselves,"[3] while the nature of physical objects can not be known. We can know, according to Mr. Russell, when the relations of sense-data in our private spaces correspond to the relations of physical objects in physical space, but not the nature of physical objects themselves.[4]

In spite of this author's assertion that the mind is capable of *a priori* intuitions of certain subsistent universals (of which we shall speak later), one finds in his writings no sufficient answer to the question how the mind knows and tests the correspondence here assumed between its ideas and the realities they represent. He writes,[5] "If, as science and common sense assume, there is one public all-embracing physical space in which physical objects are, the relative positions of physical objects in physical space must, more or less, correspond to the relative positions of sense-data in our private spaces. There is no difficulty in supposing this to be the case. If we see on a road one house nearer to us than another, our other senses will bear out the view that it is nearer; for example, it will be reached sooner if we walk along the road. Other people will agree that the house which looks nearer to us is nearer; the ordinance map will take the same view; and thus everything points to a spatial relation between the houses corresponding to the relation between the sense-data which we see when we look at the houses. Thus we may assume that there is a physical space in which physical objects have spatial relations corresponding to those which the corresponding sense-data have in our private spaces. It is this physical space which is dealt with in geometry and assumed in physics and astronomy." This passage is typical of Mr. Russell's reasoning concern-

[1] "Problems of Philosophy."
[2] "Problems of Philosophy," page 17.
[3] *Ibid.*, pages 132 f.
[4] *Ibid.*, pages 50 et al.
[5] *Ibid.*, page 48.

ing that correspondence between thoughts and things in which, he says, truth consists; and it would seem to be clear that in this doctrine of correspondence Russell's view differs from that of Green and other transcendentalists who hold that truth is unity or coherence rather than correspondence.

However, just what corresponds to what in the illustration cited above? Obviously, it is the inter-relations of one group of sense-data and those of *another group of sense-data.* The visual appearance of the houses at a distance corresponds to their visual or other appearance as modified by the tactual and motor experience of walking along the road; or our visual perception of the houses corresponds to the visual representation of them on the ordinance map; or our perception of them corresponds to that of other people. Nowhere in this illustration can it be said that we pass from an order of sense-data to an order of physical objects in physical space, unless by the latter is meant a certain grouping of sense-data. Moreover, we suspect this writer of assuming, without so stating in his book, the validity of the time-worn doctrine of primary and secondary properties; we suspect him of assuming that the primary properties of bodies, such as we become acquainted with in tactual and motor experiences, are real, while the secondary properties, such as we become acquainted with through vision and hearing, are phenomenal or ideal. He seems to mean that by comparing the order of the visual properties of bodies with the order of their tactual and motor properties we can discover a correspondence between the arrangement of sense data in perception and the arrangement of bodies and their properties in an independent physical world. Hence, it seems to me that his doctrine of correspondence as set forth in the earlier portions of his "The Problems of Philosophy" is open to every valid objection that has even been urged against the doctrine of primary and secondary properties, and his conception of truth as correspondence is not so different from the transcendentalist's conception of truth as unity as might at first appear.

I shall turn now to another aspect of Russell's philosophy, namely, to his doctrine of "universals." He tells us[6] that by the universal he means very much what Plato meant by the idea, and again,[7] that all universals are relations of space, or time, or resemblance. Universals subsist, rather than exist. He writes, "We shall find it convenient only to speak of things *existing* when they are in time, that is to say, when we can point to some time at which they exist (not excluding the possibility of their existing at all times). Thus, thoughts and feelings, minds and physical objects, *exist.*

[6] *Ibid.*, page 145.

[7] *Cf.* pages 147, 151, 158 ff.

But universals do not exist in this sense; we shall say that they *subsist* or *have being*, where 'being' is opposed to 'existence' as being timeless. The world of universals, therefore, may also be described as the world of being.'' From this quotation, it would seem that the unalterable order of relations which Green, for example, identifies with reality, is only a part of that which is real; and the question arises as to how the world of subsistences, the world of unalterable relations, stands related to the fleeting world of existences. This dualism of timeless universals and changing existences may at first seem to be a point of radical difference between externalism and transcendentalism. In Kant,[8] however, we find the same dualism described as the ''given object'' *versus* the ''thought object,'' and again as ''the given object'' *versus* ''the connected object''; while behind both objects lurks, for Kant, the thing-in-itself, just as for Russell the physical object lies beyond both.[9] It may, however, be said that such transcendentalists as Kant and Green regard the order of relations as the work of the mind, while Russell distinctly rejects that view. Very true, but this alone does not save Mr. Russell's doctrine of relations from the charge of being transcendental, for the reason that some of the transcendentalists hold that the timeless order of relations is ontological without being the work of the mind. The transcendentalists might be divided into the externalists and the internalists. To the former class would belong Plato, with whom Mr. Russell finds himself in closest sympathy, Schelling, Hegel, and some of the Hegelians, Ralph Cudworth and his co-workers, and others. The external transcendentalists are as emphatic as are the neo-realists in denying that the ontological order of relations is the work of the mind. The mind may know these relations or not know them; the relations remain the same in either case. The existence of an intelligible world is for Russell, as for the transcendentalists, dependent on an order of subsistent relations which are timeless and changeless,—which are, in fact, transcendental. Our knowledge of subsistences is, according to Mr. Russell, based on *a priori* intuitions, that is to say (in his language), on *a priori* knowledge by acquaintance, just as for Kant it is based on *a priori* concepts; and Russell maintains that we directly behold subsistent universals just as, according to Plato, we directly behold ideas.

There is, however, one respect in which Mr. Russell seems to hold views radically different from those of any transcendentalists. His doctrine of externalism seems to imply that there are terms that are absolutely distinct from the relations they sustain to one another. What are these terms? Mr. Russell is not permitted to define them in

[8] ''Critique of Pure Reason,'' tr. by Mueller, page 7 and Supplement 14.

[9] Compare also Locke's ''Essay,'' Bk. II., Chap. XXV., et al.

terms of the relations they sustain; he has voluntarily resigned that possibility. He has, however, suggested no other definition. We are not interested in this question as a problem in the logic of mathematics, or as a problem in any other sort of applied logic. However much mathematical considerations may have influenced his thought, it must not be forgotten that it is as a proposition in pure logic that Mr. Russell has set forth his doctrine of externalism in the two works to which reference is made above. Are the terms between which relations obtain sense-data or are they physical objects or are they something else? As to physical objects, Russell maintains that their nature can not be known, and that what we know concerning them is simply their order, or rather a correspondence between the order of sense-data in our private worlds and the order of physical objects in physical space and time. We have already seen that such a correspondence is for Mr. Russell a sheer assumption, a relation for the verification of which he has suggested no method. He says it is an assumption of common sense and science, but that is tantamount to saying that Mr. Russell's whole representative theory of knowledge is an assumption of common sense and science, and this we are by no means ready to grant. Even the bare existence of physical objects and, for that matter, other people's minds as well, seems to me to be assumed in this philosophy. This author says that the existence of physical objects and other minds is known by inference, but the basis of this inference is simply the questionable correspondence already referred to. Mr. Russell might say,[10] that the existence of physical objects is known *a priori* by acquaintance, that it is an instinctive belief, but this would not explain in the least the assurance we have that our ideas of particular objects, and of particular mental processes in other people's minds, are trustworthy. In short, Mr. Russell has not shown how the terms between which relations obtain are or can be physical objects.

Can the terms between which relations obtain be sense-data? "All acquaintance," writes Mr. Russell, "such as my acquaintance with the sense-datum which represents the sun, seems obviously a relation between the person acquainted and the object with which the person is acquainted. . . . Thus, when I am acquainted with my seeing the sun, the whole fact with which I am acquainted is 'self-acquainted-with-sense-datum.'"[11] All sense-data are immediately known, known "by acquaintance," and here this immediate acquaintance with sense-data is construed to be an acquaintance with a relation between the person and the object. Nowhere in this book does Mr. Russell give a clear statement as to what he means by sense-data,

[11] *Ibid.*, page 79.

[10] He does so say on page 37 of his "Problems."

that is, as to the logical status of sense data. Moreover, it is not clear what he means by person, in the above quotation. Acquaintance with a sense-datum is acquaintance with a relation between a person and an object. What is this "something which we call 'I,'"[12] which seems to be the central thing in what he calls the person? I am completely at a loss to answer this question in the terms of Mr. Russell's discussion. In short, one finds in his theory of knowledge the same shadowy ambiguity as to the terms entering into relations that one finds in the philosophy of Green and other transcendentalists. They are like the shadows cast by an arc light swinging in the wind,—if I may use one of Mr. Russell's own brilliant figures of speech.

In the first chapter of his "Prolegomena," Green writes of relations as follows: "Abstract the many relations from the one thing, and there is nothing. They, being many, determine or constitute its definite unity. It is not the case that it has existence in its unity and then is brought into various relations. Without the relations it would not exist at all. . . . It is true, as we have said, that the single things are nothing except as determined by relations which are the negation of their singleness, but they do not, therefore, cease to be single things. . . . On the contrary, if they did not survive in their singleness, there could be no relation between them—nothing but a blank featureless identity."[13] Thus, Green seems to say within the same paragraph that there are and that there are not things independent of their relations. Green's whole argument vibrates between the conception that there are terms *to be* related and the conception that relations somehow generate their terms. And so also does Mr. Russell's. Again, Green writes that "Of two objects which form the terms of a relation, one can not exist without the other, and therefore can not exist before or after the other. For this reason the objects between which relations subsist, even a relation of succession, are, just as far as related, not successive." Accordingly, Green held that time and change are not essential to relations, and this brings us back to Mr. Russell's doctrine of subsistent universals.

In these and other excerpts from Green one finds recognition of many things that play important parts in neo-realism. There is the ambiguous conception of terms to be related; there is the notion of relations as transcending their terms; there is the question as to whether, and how far, the mind can know terms as distinct from the relations they sustain to each other; there is the doctrine that relations are timeless, or at least, that relations only obtain between co-existing terms. It is true that Russell does not regard relations

[12] *Ibid.*, page 80.

[13] Pages 35 f., 1899.

as the work of the mind, but in this respect his doctrine differs not at all from the doctrine of relations maintained by many transcendentalists. Are we not warranted in asking whether Mr. Russell's transcendentalism advances the problem of relations beyond the point at which Locke and Kant left it?

G. A. TAWNEY

UNIVERSITY OF CINCINNATI.

THE FITNESS OF THE ENVIRONMENT FOR THE CONTINUITY OF CONSCIOUSNESS

PROFESSOR HENDERSON, in his book from which the first part of the above title is borrowed, has demonstrated with much ingenuity how it is that our terrestrial surroundings are just fit for the conservation of animal life. The atmosphere is of the proper density and mixture, the ocean of the precise temperature and neutrality, and the basic elements of organic compounds of exactly the required valence to yield the entire plexus of biologic life that now prevails on the globe.

The question I wish to raise is: What must be the nature of the environment which should secure to us the continuity of the thought process? Two things are necessary for the continuity of consciousness: first, awareness of the present, and second, recollection of the past. Or, to be more precise, the interlocking of the present with the past. Our consciousness of the future is really a function of our consciousness of the past. A being can look ahead only as far as backward, and no farther. The child does not know what to-morrow is because he seldom remembers his yesterday, and for the same reason the future of the aged man becomes narrow and circumscribed as a result of declining memory. What must be the nature of the environment, then, which should yield the richest and most tenacious interlocking of the present with the past?

There are, to begin with, two kinds of environments which stand in antithesis to each other. One is the absolutely homogeneous, the other the absolutely heterogeneous. By homogeneous environment I mean the knd in which there are no two things that are different. Indeed, within it there are no things, but all is one thing. It is the kind of environment that might be made to exist for a gold-fish in a glass jar. Conceive the water of the vessel to be of constant temperature and salinity; conceive the food of the animal to be uniformly dissolved throughout the water; conceive the walls of the jar to extend farther back in space than the animal can traverse within its natural life-time; finally, conceive all vibratory disturbances such as

motion, light, and sound either constant or eliminated altogether. It is obvious that the experience of an animal in such an environment would not be rich. It would be the same experience every instant. After the first pulse of life nothing new would enter its consciousness. The last chapter of that animal's life would be written with the first stroke of the pen. It would always be living in the past, though possibly it would not know it. Its consciousness would center around a single pulse or point of experience from which it could never get away. As such a consciousness would necessarily be of zero dimension, it follows that there could be no continuity of the thought process in a completely homogeneous environment.

So let us turn to the absolutely heterogeneous *milieu*. By heterogeneous environment I mean the kind in which not only no two things are the same, but in which no two things bear the slightest resemblance to each other; indeed, it is the kind of environment in which not even the same thing persists in a uniform state for an appreciable length of time. Such surroundings need not necessarily be destructive to the biologic process. Suppose air changed to water, water to earth, and earth to air, at irregular and unexpected intervals, it is conceivable that such an animal as the kingfisher, or some other creature that can walk, fly, and swim with equal ease would be well able to withstand such hurly-burly. Conceive everything on the earth undergoing a perceptible change. All things do change, it is true, but, apart from the coarser spatial movements, we experience things and not their change. But suppose conditions were such that the tree you saw yesterday were replaced by a flower to-morrow, your dog, like Faust's, became a devil, and your table a typewriter. And you, like Dr. Faust, were quite able to adjust yourself to each new situation, because the situation itself would modify you in such a way as to enable you to survive the eternal round of change. What would be the nature of consciousness then? A million new experiences, not one abiding, not one recurring, not one resembling any of the myriads that have preceded it! Obviously an organism living in such an environment would have a manifold of impressions. Its consciousness of the present would extend to the *n*th power. Would it have a sense of the past? If not, then the heterogeneous environment would be no better than the homogeneous one. With respect to the latter we said that consciousness would center round a single point of experience with no possibility of expansion; hence no continuity. With respect to the former, consciousness would be diffused over a wide range of unrelated experiences with no possibility of connection; hence, also, no continuity. What, then, must be the nature of the environment which should afford us the greatest variety of experiences and at the same time preserve

and awaken the richest memory of the past? Inasmuch as the former depends on diversity and the latter on uniformity or similarity of impressions, we have before us a problem in *maxima* and *minima*.

Experiments on the process of recognition within the visual realm, which I have conducted for several years, divulged a set of facts that seem to throw some light on the problem before us. My task was to find out the relation between recognition and degree of similarity of *meaningful* objects. That is to say, it was an experiment on ideational recognition and discrimination with graded stimuli, as distinct from sensory discrimination, which characterized all previous experiments where quantified stimuli were used.

My material consisted of a large number of picture post-cards grouped in pairs on the basis of similarity. The amount of similarity between the members of each pair was determined in terms of percentage, by 15 competent men—students and instructors in the Harvard graduate school of arts and sciences. Two cards that were totally dissimilar—one representing a red rose, the other a gray church outlined against a blue sky—were given the arbitrary value of 0 per cent. *S* (*S* = similarity). Two other cards that were identical constituted the 100 per cent. *S* end of the scale. Between these two extremes my 15 judges were advised to locate the other pairs of picture post-cards, in terms of ten or multiples of ten. By taking the average of the 15 judgments rendered for each pair of cards, I obtained their amount of similarity.[1] The reliability of this average was, of course, determined by the mean variation. Yet the mean variation differed with every degree of similarity, and this is due to the fact that it was a function of the range of judgment, as it should be. That is to say, cards that were rated as 40 per cent. *S* had a larger M. V. than those that fell within the 0 per cent. or 80 per cent. unit of the similarity scale. The reason is that the cards of 40 per cent. *S* afforded a wider range of judgment—a range that varied between 0 per cent. and 90 per cent.—than did the cards which fell into either of these last units. The following table gives the scale of similarity, the average M. V. corresponding to each unit of the scale, and the number of pairs of cards that entered into the construction of each unit.

TABLE I

Per cent. *S*.	0	10	20	30	40	50	60	70	80	90	100
Av. M. V.	0	..	12	12	13	12	11	9	6	..	0
Pairs	50	0	15	25	43	57	78	61	28	0	50

The largest M. V. we have is 13 corresponding to 40 per cent. *S*. If we bear in mind that the range of this judgment was 80, possibly

[1] A like method was used by Professor Thorndike in the construction of his writing scale.

90 units, we shall see that our largest M. V. is 16 per cent. possibly only 14 per cent. of the total range. We may conclude, then, that these judgments were fairly representative of the actual similarity that existed in the cards. To avoid any doubts I might further add that the judgments were rendered by each individual separately, *i. e.*, without any suggestion or advice from any one. The only instruction I gave to my men was to judge on the basis of their first impression, not to debate too much. As all the cards were spread out before them, as well as the 0 and 100 per cent. norms, the subjects were allowed to look over the entire display so as to get an idea of the relative degrees of similarity before they began the actual rating.

With the cards thus standardized and properly marked on the back, I proceeded to the experiment on recognition and discrimination. The method was this: One of the standardized cards, marked *A* (the normal), was exposed among a definite number of other picture post-cards, called fillers, for a definite time, say 5 seconds. An interval of 20 seconds then intervened, during which time the subject, separated from the experimenter by a screen, was required to retain as much of the material he had just observed as he possibly could. In the meanwhile, card *A* was removed and the variable, *B*, substituted. At the end of this interval the whole group was exposed once more for 5 seconds, and the subject was required to say whether all the cards of the second exposure were identical with those of the first, or whether one of them was changed, and, if so, which one. Not only were my subjects obliged to indicate the card which they thought was new, but they also had to name or to describe the card which it had displaced.

For this experiment I had ten subjects, all trained psychologists. Of course none of them had seen the cards before. After each pair of exposures new cards were used to construct the environment. A critical pair of cards was never used in more than one experiment—*i. e.*, never used twice on the same subject. The reason for exposing the critical card among a group of others was to test the process of recognition under conditions corresponding to life, namely, with distributed attention.[2] It is clear that where I made no change at all I had the condition of 100 per cent. *S*. Without going into details as to how I manipulated the various factors involved so as to obtain those conditions which, with the greatest number of cards exposed for the shortest time possible, would yield 100 per cent. correct discriminations when a card of 0 per cent. *S* was substituted and 100

[2] This experiment was carried on in the Harvard psychological laboratory under the direction of Professor Münsterberg, to whom my thanks are due for many valuable suggestions. A more extended report of the investigation will be published before long in the *Psychological Review Monographs*.

per cent. correct recognitions when a card of 100 per cent. S was substituted (*i. e.*, when no substitution was made at all), suffice it to say that I finally succeeded in finding the ideal combination of size and length of exposure which gave me these results within reasonable limits.

What we are concerned with chiefly is this: (1) What is the per cent. discrimination corresponding to each degree of similarity? This will give us an index of the extent to which consciousness of new experience is impoverished or enriched by increasing or decreasing similarity, *i. e.*, uniformity of environment. For it is obvious that the higher the degree of similarity the lower the per cent. discrimination—that is, the fewer the experiences of newness; and *vice versa*. (2) What is the per cent. recall occasioned by the discriminations corresponding to the various degrees of similarity? Inasmuch as this recall, besides depending in part on immediate memory, would depend in the main on association by similarity, it follows that the greater the resemblance of the new experience to the old, the more often would it revive the memory of the old. Here we have an index of the extent to which increasing or decreasing similarity of stimuli—*i. e.*, of environment—tends to revive or inhibit memory of past experiences. Or, in other words, tends to connect the past with the present.

Now inasmuch as discrimination (D), is a function of dissimilarity; and recall, (R), a function of similarity, the highest value of $D \times R$ which we can obtain for any value of S, will therefore be an index of that sort of environment which is most ideal for the continuity of consciousness—that is, for the interlocking of the greatest variety of present experiences with the richest memory of past. Table II. contains the results from which we derive our answer. The number of judgments that entered into each determination may be obtained by multiplying the number of pairs of cards which entered into the construction of each unit (see Table I.) by 10. The first horizontal line gives the degree of similarity; the second the corresponding per cent. discrimination, or judgments of *new* when a substitution was made; the third percentage of times that the discovery of the new card succeeded in reviving the memory of the old; and the fourth gives the product of D and R to two figures.

TABLE II

Per cent. *S.*	0	25	35	45	55	65	75	80	85	100
Per cent. *D.*	100	92	87	77	67	55	45	34	21	0
Per cent. *R.*	61	93	95	95	93	91	94	?	?	..
$D \times R$	61	*85*	*82*	73	62	50	42	..	..	..

From the above figures we notice the following facts: When the stimuli are totally unlike—*i. e.*, possess zero similarity, they set up a new psychic process every time, as evidenced by the fact that substitutions of 0 per cent. *S* are recognized as new always, without exception. On the other hand, impressions set up by stimuli of this character tend to blot out the memory of past experience to the extent of 39 per cent. I say blot out because my introspection notes show that even when my subjects had an image of the normal card of 0 per cent. *S* during the interval, the impression produced by the variable acted "like a flash of light," "like a blow between the eyes," and drove the idea of what the normal was completely out of mind. From this we may conclude that inasmuch as stimuli of absolute dissimilarity have but little association or recall value, a totally heterogeneous environment, by being detrimental to memory, would not yield continuity of thought processes. And this is as it should be, for what good would a memory do in a world where no two experiences were ever alike? Let me add, however, that there is nothing *a priori* about this "should be." It should be because it could not be otherwise, and that is all there is to it.

As we go along our scale of similarity we find that with increasing likeness of stimuli there goes a diminishing number of new experiences. Even when *S* has a value of 25 per cent., 8 per cent. of the stimuli fail to make a new impression on consciousness. And when the "physical world" becomes 55 per cent. similar our range of new experience drops to 67 per cent., when the environment becomes 85 per cent. homogeneous our consciousness contracts to the deplorable figure of 21 per cent. But perhaps one would think that the diminution of new experiences in an environment of increasing homogeneity would be compensated by a richer recall. My figures do not point to that. Stimuli of 25 per cent. *S* have as large an association (*R*) value as those of 75 per cent. *S*. That is to say, association by similarity seems to reach its maximum with a very small amount of similarity. And this I think is very fortunate, for it at once affords us the conditions where we can have the largest variety of experiences coupled with the richest memories of the past. In order to determine what the exact mixture of similarity and dissimilarity must be which should yield the best mental life, we need simply find the value of *S* that corresponds to the highest value of $D \times R$. Now the highest values of $D \times R$ are 85 and 82, corresponding to 25 per cent. and 35 per cent. *S*, respectively. Hence we may conclude that an environment which is a mixture of about 30 per cent. homogeneity and 70 per cent. heterogeneity is the most ideal environment for the continuity of consciousness.

GUSTAVE A. FEINGOLD.

HARVARD UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

A Study in Incidental Memory. GARRY C. MYERS. Archives of Psychology, No. 26, February, 1913.

A voluminous literature has grown up about the study of memory, but little concerns directly the problem of what has been called "incidental memory," a term first used by Wallace in the study which constitutes the twelfth monograph of this series. Attention to the stimulus and an intended act of recollection have formed part of most tests in this general field. In addition to what thus enters into the individual's experience, there is a mass of impressions which do not primarily condition reaction or appeal to the individual's interest at the moment. It is the results of a study of the measure of retentiveness in these incidental impressions and its variations which are here presented.

As these supplementary features of the witnesses' experience are invariably explored in the legal scrutiny of testimony, it is from the psychological inquiry into the latter problem that our information concerning incidential memory has chiefly been derived. Of this material the writer gives an interesting résumé in his introduction. His own investigation covers a large variety of phenomena. It includes tests of incidental memory for the proportions and areas of well-known objects, such as bills, coins, and postage stamps, of words and the number of their component letters, of letter squares, dates, events, and extent of movement. In each case the reactions of characteristic groups and classes are separately presented, sex differences, and the effects of training, age, and professional occupation upon particular forms of perception and retention being thus brought out.

"Not one in twenty could reproduce six simple words in correct order immediately after writing them, in case they did not know beforehand that these words were to be reproduced," says the writer in his general conclusion. "It was a rare exception to find a subject who could represent the Roman figures on a watch dial unless his attention had been previously called to their arrangement. Fewer than half the subjects tested could associate the correct year with events most familiar to them. About half the individuals tested correctly estimated the number of letters in their own names."

As to the general causes of these facts, "we either shut out entirely from our senses those things which are not in accord with our interests and prejudices, or we perceive them very imperfectly. This perceptive selection with its resultant influence upon association the writer applies to certain assumptions of the Freudian school, referring the apparent associative inhibitions to original failure to establish the associations in question. This study shows "how meager is our memory of the most commonplace objects, relations, and events that were not in the central field of interest, or closely attached thereto, when they were presented to the senses." He has earlier pointed out that errors in any perception tend to

be perpetuated in subsequent perceptions mediated by the same sensory complex. "Moreover, one often has a mass of imperfect, fragmentary, and unclassified perceptions which, when subsequently joined together in terms of experience, present conclusions that are distorted representations of the original stimuli."

"In the process of learning, then," the writer concludes, "the vital factors are the manner in which the stimuli are presented to the senses and the attitude of the subject at the time of their presentation. It is more important to organize the stimuli in their presentation than to organize subsequently perceptions of chaotic stimuli. Therefore the true aim of education should be to teach the child to study rather than to recite."

ROBERT MACDOUGALL.

NEW YORK UNIVERSITY.

Dernières Pensées. H. POINCARÉ. Paris: Flammarion. 1913. Pp. 258.

This volume, published posthumously, contains a number of miscellaneous papers which M. Poincaré had intended to bring together as the fourth volume of his contributions to the philosophy of science. Its content is partly new and partly old. To the latter material belong chapters four and five, which review and complete the author's attacks, incorporated in the second part of "Science and Method," upon the Cantorians, as represented by Russell and Hilbert; chapters two and three, which carry on the analysis of space and geometry begun in Part II. of "Science and Hypothesis," and continued through Part II. of the "Value of Science" and the first chapter of the second part of "Science and Method"; and, perhaps, chapter seven, on "Les Rapports de la Matière et de l'Ether," which is closely related to the second part of "Science and Method." However, M. Poincaré is always worth while when he repeats himself, for his mind never stands still and, for him, repeated issues are issues refined and subtilized to such a degree that it is not always easy to reduce them to their prototypes.

Of the new essays, chapter one, "L'évolution des Lois," justifies the scientist in refusing to entertain the hypothesis indicated by its title; chapter six, "L'hypothèse des Quanta," discusses a momentous physical hypothesis of Planck and develops from it an astounding suggestion of a discontinuous universe contradicting absolutely the scholastic adage *Natura non fecit saltus;* and chapters eight and nine give us our only glimpse of the author's moral philosophy.

Except for the cosmological implications of the "Quanta," the most noteworthy moments of the book are the assertion of the mutual dependence of logic and psychology (p. 139), and the definition of M. Poincaré's method in language frankly pragmatic, culminating (p. 146) in his first explicit acceptance of the term. Later he identified pragmatism with idealism as opposed to the Cantorian realism. This passage will furnish a real problem to commentators on Poincaré's philosophy, for while his

idealism is expressed in orthodox Berkeleian language (pp. 158–9), the whole analysis of the relation of thoughts and things in his previous writings is hard to identify with this position.

The essays concerning morality, chapters eight and nine, are unfortunately too brief to do more than define roughly the scientist's reaction upon the relation of science and morals, but there is a suggestion here of the same estheticism that controlled the account of creative imagination in "Science and Method" as the dominant factor in a moral situation. That we shall not be led further by him in this direction is by no means the least loss philosophy has sustained in the untimely death of Henri Poincaré.

HAROLD CHAPMAN BROWN.

COLUMBIA UNIVERSITY.

JOURNALS AND NEW BOOKS

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. January, 1914. *Über Herbarts Lehre von intelligiblem Raum* (pp. 129–171): BRANISLAV PETRONIEVICS. – Herbart's doctrine of intelligible space is presented and criticized from the points of view of its own incompleteness and of its bearing upon the construction of a real discrete space. Herbart could attribute no objectivity in the usual sense to the intelligible space. His position here and that of his successors is given. The fundamental interests of Herbart which the doctrine of intelligible space served are treated in some detail. *Die Entste-hung des stoischen Moralprinzips* (pp. 171–188): GOTTFRIED BOHENBLUST. – The Stoic teaching is rooted in Heraclitus; and the emphasis on self control and conformity to the All is to be considered practically an emphasis on equivalents. Sources are cited and later Stoic development treated. *Zur Geschichte der Skepsis. I. Franciscus Sanchez* (pp. 188–223): A. CORALNIK. – The Portuguese Jew Sanchez (1552–1632) is treated as a type of the skeptic in natural science, of which there are examples from Sextus Empiricus to Boutroux, Mach, and Russell. Sanchez attacked Aristotelian syllogistic reasoning and said, "Why do you constantly talk of conclusions and not of things?" Science is the complete knowledge of things, and that is not attainable. Sanchez never investigated the concept of causality, and, in so far, is more a nominalist than a skeptic. He was caught in the terms and ideas of Scholasticism; yet in his emphasis on the use of the senses he was modern. *Das System Benedetto Croces* (pp. 223–235): ECKART V. SYDOW. – A condensed presentation of Croce's fundamental position on concepts, with the chief points of his views on the nature of Esthetics, Logic, Economics, and Ethics. This division of the disciplines indicates the four possible categories—the beautiful, the true, the useful, and the good. *Rezensionen. Die neuesten Erscheinungen auf dem Gebiete der Geschichte der Philosophie. Zeitschriftenschau.*

REVUE PHILOSOPHIQUE. August, 1913. *La dysbiose* (112–157): A. MARRO. – Three factors determine homicide, "psychic hyperesthesia," "impulsive automatism," and the anti-social sentiment (la dysbiose). The present article traces the growth of the anti-social sentiment and expounds its connection with the instincts of self-preservation, sex, and social sympathy. *Le problème moral: Idées et Instincts* (158–182): C. BAUCHAL. – A study of the evolutionary nature of moral instincts and moral ideas. "Morality adapts itself to the structure of society in such a way as to secure the equilibrium of the forces which constitute that structure." To the principle: "No society without morality" it is necessary to add: "No morality without a society." *La psychiatrie et l'éducation morale des Normaux (fin)* (183–201): A. LECLÈRE. – Considers the value of psychiatry in practical pedagogy, particularly in connection with the education and moralization of the defective, morbid, etc., mind. *Notes et documents. De Descartes à James:* A. D. H. *Analyses et comptes rendus.* Georges Dumesnil, *La sophistique contemporaine:* HUBERT. Pierre Delbet, *La science et la réalité:* FELIX LE DANTEC. Lloyd-Morgan, *Instinct and Experience:* HENRI PIÉRON. Theodor Lipps, *Psychologische Untersuchungen: Zur Einfühlung:* G. L. DUPRAT. *Notices bibliographiques.*

Brown, Warner. The Judgment of very Weak Sensory Stimuli. University of California Publications in Psychology. Berkeley University of California Press. Pp. 70.

Samter, Ernst. Die Religion der Griechen. Leipzig und Berlin: Verlag von B. G. Teubner. 1914. Pp. vi + 16.

Schiele Friedrich Michael, and Mulert, Hermann. Friedrich Schleiermacher Monologen nebst den Vorarbeiten. Leipzig: Verlag von Felix Meiner. 1914. Pp. xlviii + 199. 3 M.

This book forms Volume 84 of Meiners Der Philosophischen Bibliothek. It is a critical edition and contains an introduction, bibliography, index, and notes.

NOTES AND NEWS

AT the meeting of the Aristotelian Society on June 8, Mr. David Morrison read a paper on "The Treatment of History by Philosophers." "Can historical process be adequately explained by principles which have sufficed for the explanation of the processes of inanimate nature? or, if it can not, are we compelled to question whether, after all, mechanical principles suffice, even for the explanation of the world of nature? In any consideration of final cause in history we are compelled to face the question of the nature of time and its relation to ultimate reality, and we are forced back to the source and primary meaning of causality as we find it in ourselves as active or efficient. A use of the principle of causality, applicable to most scientific investigations, seems not strictly acceptable when we deal with human causes, unless it can admit spontaneity or individual activity as a fact. The question of the freedom of the human will

is thus a quite real question for any one writing a philosophy of history, and so also is the question of the reality of time. If time is unreal, then what we see in history may, indeed, be the fragmentary presentation of something eternally perfect; but it may give us only glimpses of an ultimate chaos. If time is real, the end is not yet attained, and seems, indeed, never completely attainable, and that to some people appears an insuperable objection. But the thing must be one way or the other. The relation of these two views of the nature of time to the philosophy of history, was illustrated at length by comparison of the theories of Dr. Bosanquet, M. Bergson, and Professor Varisco. It was shown that for all these writers, history presents philosophy with problems which can not simply be ignored, problems connected with such concepts as efficient and final cause, finite personality and value, and with questions as to the reality of time, the nature of real possibilities, the relation of mind and body, and the relation of mechanism and teleology. The contest is ultimately between spontaneity or individual activity, and the scientific concept of inert matter as a constant quantity. We can not decide the ultimate essence of value without deciding the significance we are to give to feeling. The distinction of selves is not overcome, even in our highest emotional experience, although that may give rise to osmotic processes among selves, and it is doubtful if even the most rapt mystic would be satisfied, if the value he realizes in his love of God were preserved as another's, and not as his experience. In history we lay our count with nothing short of the whole world, and this world has produced those highest emotional experiences which alone have rendered tolerable for us much else that it has produced. Without the existence of that great scale passing from simple human happiness to supreme exaltation of soul, should we ever have spoken of value as something actually existing in the world? The president, in opening the discussion, said that he considered that much injustice had been done to the school of writers who follow Mr. Bradley and Mr. Bosanquet in representing their doctrine as one of the unreality of time. They did not declare that time is unreal, but that it is not ultimate in the sense that it contains reality; reality contains it, it is one of the features contained in the absolute. He illustrated this in calling attention to the importance attributed by them to historical development, and more particularly, to the contention of Mr. Bosanquet, that real value resides in what is universal, and that there is no value in psychological states as such, but only in so far as they are mental states, cognizant of what is of universal significance. This view had been even more strikingly illustrated recently in the works of the Indian mystic, Tagore. Dr. Wolf held that the philosophical historian approached his problem in a more proper spirit when he tried to determine the kind of value history has, rather than what he would like it to have. Mr. Mead said that if we take history in block, it is impossible to find meaning in it. If a philosopher is going to consider any scientific matter, he will surely have to dissociate fact from allegation and unproved theory. Looking at history in this way, we see it as a mixture of fact and unproved theory, and we can hardly imagine meaning to run through both. This is the distinction that modern historians

are seeking to establish between *Geschichte* and *Storicismus*. Mr. Carr emphasizes the tendency in each of the three philosophers discussed in the paper to insist on the impossibility of cutting universals, values, spiritual reality of every kind, free from their attachment to scientific reality. However important the value we give to conscious experience, however vastly the spiritual overflows the material and temporal, it is in indissoluble relation with it, and we can give no meaning to life or mind entirely detached from the materialism or mechanism of nature. Mr. Tudor Jones, Mr. Worsley, and Mr. Shelton also spoke, and Mr. Morrison replied."—*Athenæum.*

THE following letter has been sent out by the Comité International de la Médaille et de la Fondation Henri Poincaré:
Messieurs:

Pour rendre hommage à la mémoire de Henri Poincaré et pour attacher son nom à une Fondation scientifique, les Membres soussignés du Comité international, d'accord avec la famille du grand savant, ont l'honneur de proposer à ses amis, à ses confrères, à ses collègues, à ses admirateurs de tous les pays, de vouloir bien participer à une Souscription internationale destinée:

1° A frapper une Mèdaille à l'effigie de Henri Poincaré;

2° A constituer un Fonds dont les arrérages seraient employés par l'Académie des Sciences à encourager ou à récompenser de jeunes savants qui s'occupent des parties de la Science dont le génie de Henri Poincaré a assuré le progrès: l'Analyse mathématique, la Mécanique céleste, la Physique mathématique, la Philosophie scientifique.

Une Médaille de bronze sera envoyée aux personnes dont la Souscription sera égale ou supérieure à 25 francs et inférieure à 50 francs; une Médaille d'argent sera envoyée aux personnes dont la Souscription sera égale ou supérieure à 50 francs.

The letter is signed by leading European philosophers, psychologists, scientists, statesmen, and men of letters. Contributions to the fund should be sent to M. Ernst Lebon, Secrétaire-Trésorier, rue des Ecoles, No. 44^{bis}, Paris, 5^{e}, France.

THE completion of the third edition of "The Golden Bough" has suggested to the many friends and admirers of Dr. J. G. Frazer that the present is a suitable time to offer him some token in recognition of his great services to learning. It is proposed that a Frazer Fund for Social Anthropology be established to make grants to traveling students of either sex, whether connected with a university of not, with a view of their investigating problems in the culture and social organization of primitive peoples, a department of anthropology which Dr. Frazer has always been eager to promote. Contributions to the fund may be sent either direct to the secretary and treasurer, Mr. F. M. Cornford, Trinity College, Cambridge, or to the "Frazer Fund Account," Messrs. Barclay and Company, Mortlock's Bank, Cambridge.—*Nature.*

THE following new psychological journals have recently been launched: *Archiv für Religionspsychologie;* edited by W. Stählin; published by J. C. B. Mohr (Paul Siebeck), Tübingen. Subscription, 12 Marks. *Münchener Studien zur Psychologie und Philosophie;* edited by Oswald Külpe and Karl Bühler; published by W. Spemann, Stuttgart. Each number sold singly.

THE editors of the *Psychological Bulletin* have announced that owing to the large amount of experimental material submitted to the *Psychological Review,* for which that journal has no available space, an effort will be made to establish a *Journal of Experimental Psychology* next fall, under the editorship of Professor John B. Watson.

THE University of Paris has approved the nomination of Professor James Rowland Angell, head of the department of psychology, and dean of the faculties of arts, literature, and science in the University of Chicago, as lecturer at the Sorbonne in 1915.

DR. ALOIS RIEHL, professor of philosophy at Berlin, has given the seventeen thousand marks presented to him on his seventieth birthday for the establishment of Dozentenhaus, intended to be a hall of residence for lecturers at the university.

THE Macmillan Company is about to publish "Greek Philosophy—Part I. Thales to Plato" by Professor John Burnet. The work will be one of the series of "Schools of Philosophy," edited by Sir Henry Jones.

DURING the third and fourth weeks of June Professor C. J. Keyser, of Columbia University, delivered a series of three lectures on science and religion at the University of Montana.

THE Hon. Bertrand A. W. Russell, F.R.S., late fellow of Trinity College, Cambridge, has been elected Herbert Spencer lecturer at Oxford University for the year 1914–15.

THE works of Professor Henri Bergson have put upon the Index, on the ground, it is said, that their plausibility is not less dangerous than frank materialism.

PROFESSOR A. K. ROGERS, of the University of Missouri, has been appointed professor of philosophy at Yale University.